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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,712	05/14/2001	Yu-Chun Chow	586-24-PA (PECA35502/1680)	8870
22145	7590	05/05/2005	EXAMINER DAVIS, CYNTHIA L	
KLEIN, O'NEILL & SINGH 2 PARK PLAZA SUITE 510 IRVINE, CA 92614			ART UNIT 2665	PAPER NUMBER

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/854,712

Applicant(s)

CHOW, YU-CHUN

Examiner

Cynthia L Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-11, 23, 24 and 26-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-11, 23, 24, and 26-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1-3 and 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Joung.

Regarding claim 1, a control signal system in a switch including N ports and a buffer for registering data packets with an empty buffer counter for counting how much space in said buffer remains available is disclosed in the instant application, figure 1, element 10. N port-packet-counters for respectively counting how many said data packets in said buffer are intended to be respectively sent to specific ones of N said ports is disclosed in the instant application, figure 1, the element named "Port N packet counter". Said control signal system being a flow control signal system for controlling a flux of said data packets to be sent to said specific ones of N said ports is missing from is missing from the admitted prior art. It is disclosed in Joung, column 6, lines 44-47. It would have been obvious to one skilled in the art at the time of the invention to control the flux of the data to be sent to the N ports. The motivation would be to avoid congestion. An alarming device for alarming that said N ports have reached a threshold state is missing from the admitted prior art. It is disclosed in Joung, column 6, lines 44-47 (each counter can trigger an alarm state). It would have been obvious to one skilled in the art at the time of the invention to have N alarm units for the N ports. The motivation would be to indicate for each individual port that flow control is necessary.

Regarding claim 2, the buffer being a buffer stack comprising a plurality of buffer units is missing from the prior art. It is disclosed in Joung, column 6, lines 28-29 (the logical queues for each port are the plurality of buffer units). It would have been obvious to one skilled in the art at the time of the invention to have the buffer stack comprise a plurality of buffer units. The motivation would be to have the buffer divided up among the ports.

Regarding claim 3, each buffer unit receiving and storing a data packet sent from a network to be sent to a specific port in said switch is missing from the prior art. It is disclosed in Joung, column 6, lines 25-29. It would have been obvious to one skilled in the art at the time of the invention to receive and store data packets destined for specific ports. The motivation would be to keep the packets until there is bandwidth available for them to be output.

Regarding claim 6, the alarming device including N alarm units for respectively alarming that said N ports have reached threshold states is missing from the prior art. It is disclosed in Joung, column 6, lines 44-47 (each counter can trigger an alarm state). It would have been obvious to one skilled in the art at the time of the invention to have N alarm units for the N ports. The motivation would be to indicate for each individual port that flow control is necessary.

Regarding claim 7, the empty buffer having a counting value less than a preset threshold value is missing from the prior art. It is disclosed in Joung, column 3, lines 43-46. Also, a specific one of said N port-packet-counters having a counting value greater than a preset threshold value is missing from the prior art. It is disclosed in Joung,

column 6, lines 44-47. It would have been obvious to one skilled in the art at the time of the invention to set thresholds for the counters. The motivation would be to define when flow control is necessary.

Regarding claim 8, the alarm units comprising N comparators and N signal generators is missing from the prior art. It is disclosed in Joung, column 6, lines 47-51 (each port can have different threshold values, implying that each port has a separate comparator) and lines 61-65 (each comparator would generate a signal to send to the packet memory interface to indicate the threshold had been reached). It would have been obvious to one skilled in the art at the time of the invention to have N comparators and N signal generators. The motivation would be to be able to trigger flow control for each of the N ports.

Regarding claim 9, each of N comparators sending a triggering message corresponding to the threshold state to a respective one of N signal generators after the alarm units respectively alarm is missing from the prior art. It is disclosed in Joung, column 6, lines 61-65 (the combination of the each individual input port's counter, comparator, and the packet memory interface can be viewed as a signal generating unit that the comparator sends a triggering message to). It would have been obvious to one skilled in the art at the time of the invention to have the N comparators send triggering messages to the N signal generators when the alarm goes off. The motivation would be to send a triggering message when flow control is necessary.

Regarding claim 10, the respective one of said N signal generators being triggered by said triggering message for sending a flow control signal to all said N ports

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except said specific port is missing from the prior art. It is disclosed in Joung, figure 6, element 308 (the pause frame goes to the other ports). It would have been obvious to one skilled in the art at the time of the invention to send a flow control signal to all N other ports. The motivation would be to make them stop sending packets to the congested output port.

Regarding claim 11, the N ports being output/input ports for outputting/inputting said data packets through said N ports is missing from the prior art. It is disclosed in Joung, figures 4 and 6 (upstream is output, downstream is input). It would have been obvious to one skilled in the art at the time of the invention to have the N ports be input/output ports. The motivation would be to use the type of ports usually found in a switch.

2. Claims 23-24, and 26-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erimli in view of Joung.

Regarding claim 23, storing means for receiving data packets from a network to be sent to a specific port and storing in said buffer is disclosed in figure 4, element 412. Computing means for counting a flux of said data packet to be sent to said specific port is disclosed in column 12, lines 15-17. Alarming means for causing an alarming state for preventing said specific port from being overfilled with data packets is disclosed in column 12, lines 15-17 and 57-60 (when the threshold is reached, an alarm state is achieved and the pause frame is generated). Triggering means for triggering a message to stop any data packet to be sent to said specific port from being transmitted into said switch is disclosed in column 12, lines 57-60 (the pause frame is triggered).

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Processing means for processing said data packets transmitted to said specific port until all data packets in said switch have been processed is disclosed in column 14, lines 61-62 (the output ports are monitored continuously for alarm states while the packets flow through the switch). Said flux being up-counted by one of N port-packet-counters respectively counting how many of said data packets in said buffer are intended to be respectively sent to specific ones of said N ports is disclosed in column 12, lines 15-17 (in order to determine if the maximum number is reached, there must be a counter). Said flux being down-counted by an empty buffer counter counting how much space in said buffer remains available is missing from Erimli. This is disclosed in Joung, column 3, lines 30-43. It would have been obvious to one skilled in the art at the time of the invention to count the amount of space left in the buffer. The motivation would be to determine when the master buffer for the switch was full.

Regarding claim 24, N alarm units for alarming the switch from being overfilled with data packets to be sent to said N ports is disclosed in 12, lines 15-17 and 57-60 (when the threshold is reached, an alarm state generates the pause frame).

Regarding claim 29, said message in said triggering means being triggered by another data packet coming from a second port in said switch to be sent to said specific port is disclosed in column 15, lines 51-52 (the pause frame could be sent only to stations currently transmitting to the alarming port).

Regarding claim 30, the message being sent by a comparator set in the system corresponding to said second port is disclosed in column 15, lines 37-39.

Regarding claim 31, the message being sent to a signal generator corresponding to said comparator is disclosed in column 15, lines 32-36.

Regarding claim 26, the empty buffer counter having a preset threshold denoting a minimum safety level for allowing data packets into the switch is missing from Erimli. It is disclosed in column 3, lines 43-46 of Joung. It would have been obvious to one skilled in the art at the time of the invention to have a threshold for the empty buffer counter. The motivation would be to determine when the buffer had no more space.

Regarding claim 27, the N port-packet-counters comprising a respective port threshold value denoting a maximum safety level for allowing of said data packets to be sent to a corresponding one of said N ports is disclosed in column 12, lines 15-17 of Erimli.

Regarding claim 28, the alarm state being established when one of said N-port packet-counters is greater than said respective port value is disclosed in column 12, lines 57-61. Claim 28 further discloses the alarming state being established when the empty buffer counter count is less than the preset buffer threshold, which is missing from Erimli. This is disclosed in column 3, lines 43-46 of Joung. It would have been obvious to one skilled in the art at the time of the invention to have alarm state established when the empty buffer counter drops below the threshold. The motivation would be to alarm that action is necessary when the buffer is full.

Regarding claim 32, sending a data packet to be sent to a first port from a network and storing the data packet into one of a plurality of buffer implements disposed in the buffer stack is disclosed in Erimli, figure 4, element 412. Deducting 1 from an



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empty buffer counter disposed in the switch is missing from Erimli. This is disclosed in Joung, column 3, lines 30-43. It would have been obvious to one skilled in the art at the time of the invention to count the amount of space left in the buffer. The motivation would be to determine when the master buffer for the switch was full. Adding 1 to one of N port-packet-counters corresponding to the port set in the flow control signal system is disclosed in column 12, lines 15-17 (in order to determine if the maximum number is reached, there must be a counter). Respectively computing whether the value of the empty buffer counter is less than a buffer examined threshold is missing from Erimli. It is disclosed in column 3, lines 43-46 of Joung. It would have been obvious to one skilled in the art at the time of the invention to have a threshold for the empty buffer counter. The motivation would be to determine when the buffer had no more space. Computing whether the value of the port-packet counters are greater than a port-packet-examined threshold is disclosed in column 12, lines 15-17 of Erimli. Announcing an alarming state for informing that the data packets from the network to be sent to the first port will be filled is disclosed in column 12, lines 1-7 (when the threshold is exceeded, data loss will occur unless flow control is performed; the alarm state triggers the flow control). Finding a second data packet from a second port to be sent to the first port is disclosed in column 15, lines 46-50 (sometimes the pause frame is only sent to ports where packets going to the congested output port are located). Sending and storing the second packet into another buffer implement of the buffer stack is disclosed in column 15, lines 61-62 (the current frame is transmitted, received, and stored in the queue). Triggering one of (N-1) alarm units corresponding to the second port for

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stopping other data packets from source ends connected with the other ports in the network transporting to the switch is disclosed in column 15, lines 47-51 (the pause frame is sent to the upstream ports that have data packets to send to the specific port; the trigger for the pause cell generator is equivalent to an alarm). Repeating the steps after the alarming state is removed to process the data packet to be sent to the first port until all data packets in the switch have been processed is disclosed in column 14, lines 61-62 (the output ports are monitored continuously for alarm states).

Regarding claim 33, before the performance of said step (a), a step of transporting said data packet from the network to the switch is disclosed in column 4, lines 12-15 of Erimli (the invention is a switch in a packet-switched network).

Regarding claim 34, said empty buffer counter is for respectively for recording a residual value of an empty number in the buffer stack is missing from Erimli. This is disclosed in Joung, column 3, lines 30-43. It would have been obvious to one skilled in the art at the time of the invention to count the amount of space left in the buffer. The motivation would be to determine when the master buffer for the switch was full. N port-packet-counters are for recording the number of data packets to be sent to the first port is disclosed in Erimli, column 12, lines 15-17 (in order to determine if the maximum number is reached, there must be a counter).

Regarding claim 35, before said step (c) said method further comprises a step of examining N ports except for the first port is disclosed in column 12, lines 15-17 (all ports in the system are examined; the first port is examined in step c).

Regarding claim 36, said buffer-examined threshold in said step (c) is defined by presenting a value by a user is missing from Erimli. However, this is disclosed in Joung, column 3, lines 48-50. It would have been obvious to one skilled in the art at the time of the invention to have a user set the threshold value. The motivation would be to indicate when the packet memory becomes full (column 3, lines 49-50 of Joung).

Regarding claim 37, said port-packet-examined threshold in said step (c) is defined by presenting another value by a user is disclosed in column 14, lines 63-65 (the threshold is programmed in).

Regarding claim 38, said alarming state in said step (d) is announced by N alarming units set in said flow control signal system except for one corresponding to said first port is missing from Erimli. It is disclosed in Joung, figure 6, element 308 (the pause frame goes to the other N ports, the receipt of the pause frame by the other N ports is the announcement of the alarm state).

Regarding claim 39, said step (f) further comprises a comparing step and a triggering step respectively for one of N comparators set in said flow control signal system to compare said values in said step (c) and one of N signal generators set also in said flow control system to trigger a triggering message to be sent to another port is disclosed in column 12, lines 15-17 (each port can have different threshold values, implying that each port has a separate comparator) and column 12, lines 57-60 (each comparator would generate a signal to trigger generation of a pause frame).

Regarding claim 40, said triggering message is for stopping the network connected to another port transporting said data packets to said switch as defined in said step (f) is disclosed in column 15, lines 47-51.

***Response to Arguments***

3. Applicant's arguments filed 2/22/2005 have been fully considered but they are not persuasive.

Regarding claim 1, the elements labeled "Port 1 packet counter" to "Port N packet counter" read on the language used in the claim, so applicant's arguments that the counters are technically different is not relevant. Also, a device that causes action to be taken in the event of an emergency state may be considered an alarming device.

Regarding claim 2, the queue structure of Joung read on the language used in the claim.

Regarding claim 23, a device that causes action to be taken in the event of an emergency state may be considered an alarming device. That a flow control occurs in Erimli is the result of an alarm. The precise technical features of the alarm system that are argued by the applicant are not present in the claim language. Limitations from the specification are not read into the claims

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia L Davis whose telephone number is (571) 272-3117. The examiner can normally be reached on 8:30 to 6, Monday to Thursday.

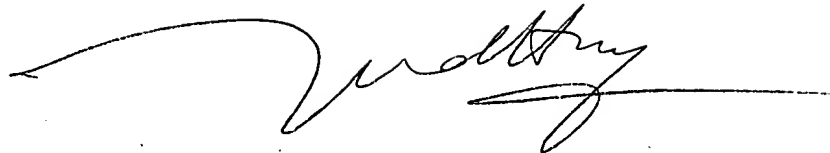
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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CLD  
4/18/2004

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4/18/04

A handwritten signature in black ink, appearing to read 'Huy D. Vu', with a long horizontal stroke extending to the right.

HUY D. VU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600